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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
KIM, DAVID S	

ART UNIT	PAPER NUMBER
2633	

DATE MAILED: 12/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/761,532	KAWAI ET AL.	
	Examiner	Art Unit	
	David S. Kim	2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 October 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8 and 10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8 and 10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 January 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. Figures 11 and 12 should each be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

2. Applicant's compliance with the objections to the specification in the previous Office Action (mailed on 01 June 2005) is noted and appreciated. Applicant's amendments to the specification correct the previously noted informalities. Accordingly, the previous objections are withdrawn.

Claim Objections

3. **Claim 5** is objected to because of the following informalities:

The phrase, "either or both of at least two upstream sections, extending in the emitter," is still unclear. In particular, "extending in the emitter" is not shown in the figures nor is it clear how upstream sections extend "in the emitter" of the figures. Rather, Applicant explains,

> "Figure 8 shows two upstream sections, extending *from* the emitter (10), of the first and second propagation paths (A, B)" (filed on 26 November 2004, p. 9, last paragraph, emphasis Examiner's).

Examiner suggests amending claim 5 such that "extending *in* the emitter" is changed to -- extending *from* the emitter --, as explained by Applicant. Otherwise, Applicant may provide an interpretation of claim 5 that is supported by the specification.

Claim Rejections - 35 USC § 112

4. Applicant's response to the rejections of claims 1-10 under 35 U.S.C. 112, first paragraph (enablement) in the previous Office Action (mailed on 01 June 2005) is noted and appreciated.

Applicant's deletion of the limitation "at or above which a faulty optical signal transmission is not caused" overcomes these rejections. Accordingly, the enablement rejections are withdrawn.

5. Applicant's response to the rejection of claims 6-10 under 35 U.S.C. 112, first paragraph (written description) in the previous Office Action (mailed on 01 June 2005) is noted and appreciated. Applicant's deletion of the limitation "at or above which a faulty optical signal transmission is not caused" overcomes this rejection. Accordingly, the written description rejection is withdrawn.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. **Claims 1-8 and 10** are rejected under 35 U.S.C. 103(a) as being unpatentable over Maue et al. (U.S. Patent No. 5,040,168, hereinafter "Maue") in view of the admitted prior art (hereinafter the "APA").

Regarding claim 1, Maue discloses:

An optical signal transmission device, mounted to a vehicle, for propagating an optical signal, used to control operation of a vehicle-mounted apparatus, through a free space along a first propagation path (blocked path from a transmitter, e.g., 1A in Figs. 3 and 5, to receiver(s), e.g., modules 3 in Figs. 1-2 or to transmitter/sensor 1C or 1D in Fig. 5) extending from an emitter to a receiver and a second propagation path (unblocked path from a transmitter, e.g., 1A in Figs. 3 and 5, to receiver(s), e.g., to

modules 3 in Figs. 1-2 or to transmitter/sensors 1C or 1D in Fig. 5) extending from the emitter to the receiver via a reflector (col. 5, l. 35-66) that is disposed outside the emitter and the receiver, the device comprising:

an optical axis of a light-emitting element of the emitter or that of a light-receiving element of the receiver being deviated (emitter or receiver facing a reflector, col. 5, l. 45-60) such that a ratio (not expressly disclosed but inherently present) of an incident intensity, at the receiver, of a second optical signal propagating along the second propagation path (path of unblocked signal) to an incident intensity, at the receiver, of a first optical signal propagating along the first propagation path (path of blocked signal, col. 6, l. 15-19) is equal to or higher than a predetermined value (i.e. zero, required to be higher than a value of zero in order to be functional).

Maue does not expressly disclose:

wherein the reflector comprises a seat cushion frame, and wherein the emitter is configured to transmit the second optical signal directly to an underside of the seat cushion frame.

However, Maue does teach the placement of an emitter under a seat (col. 7, l. 52-54). Additionally, Maue teaches appropriate positioning of emitters and supplying limited controlled reflection of optical signals to obviate a requirement of more powerful emitters and/or more sensitive receivers (col. 7, l. 36-47). Accordingly, by simple extension, Maue suggests appropriate positioning of this emitter under the seat and supplying limited controlled reflection of its optical signals. Obviously, optical signals transmitted from this emitter would reflect off various surfaces as they propagate to other receiver units (e.g., see this general reflection principle in Fig. 1). With the emitter located under the seat, an obvious reflective surface would be the seat cushion frame around this emitter. The APA also teaches such a surface (Applicant's specification, p. 5, table). At the time the invention was made, it would have been obvious to one of ordinary skill in the art to employ a seat cushion frame as a surface for the limited controlled reflection suggested by Maue (located under the seat, e.g., on the floor, the emitter would direct an optical signal to an underside of the seat cushion frame as the reflector). One of ordinary skill in the art would have been motivated to do this since a seat cushion frame has a higher reflection factor than

other common surfaces in the environment of "under a seat" (Applicant's specification, p. 5, table), thus reducing the need for more powerful transmitters and more sensitive receivers (Maue, col. 7, l. 36-47). That is, compared to optical signals that reflect off of other less reflective surfaces, optical signals that reflect off of a seat cushion frame retain more signal power. As optical signals retain more signal power, the need for more powerful transmitters and more sensitive receivers decreases, generally leading to lower costs since such transmitters and such receivers are more generally expensive than less powerful and less sensitive receivers.

Regarding claim 2, Maue in view of the APA discloses:

The optical signal transmission device according to claim 1, wherein at least one of the light-emitting element of the emitter and the light-receiving element of the receiver is disposed upward (e.g., An obvious location for the emitter of claim 1 under the seat is on the floor under the seat. Thus, as seat cushion frames are generally located above the floor, it would transmit upward toward the seat cushion frame of claim 1.).

Regarding claim 3, Maue in view of the APA discloses:

The optical signal transmission device according to claim 1, wherein said predetermined value is 25%.

Note an exemplary ratio of Maue in view of the APA:

$$\text{ratio} \sim \frac{\text{unblocked signal (along 2nd path including the reflector)}}{\text{blocked signal (along 1st path)}} = \frac{X}{0}, \; X > 0 = \infty$$

Note the ratio of claim 3:

$$\text{ratio} \sim 25\% = 1/4$$

The exemplary ratio of Maue in view of the APA (∞) is higher than the predetermined value (25%) of claim 3.

Regarding claim 4, Maue in view of the APA discloses:

The optical signal transmission device according to claim 1, wherein said light-emitting element is disposed that its optical axis (e.g., An obvious location for the emitter of claim 1 under the seat is on the floor under the seat. Thus, as seat cushion frames are generally located above the floor, it would transmit

upward/upstream toward the seat cushion frame of claim 1.) coincides with an upstream section, extending from the emitter to the reflector, of the second propagation path (path of unblocked signal).

Regarding claim 5, Maue in view of the APA discloses:

The optical signal transmission device according to claim 1, wherein one or more reflector members (plurality of reflecting surfaces on the seat cushion frame) are disposed in either or both of at least two upstream sections, extending in the emitter, of the first and second propagation paths (e.g., the case wherein both propagation paths have upstream sections to a receiver located upstream from the emitter under the seat).

Regarding claim 6, Maue in view of the APA discloses:

An optical signal transmission device, mounted on a vehicle, for propagating an optical signal, used to control operation of a vehicle-mounted apparatus, through a free space from an emitter to a receiver, the device comprising:

said transmission device (Figs. 1-5) having a reflector (col. 5, l. 35-66, seat cushion frame from treatment of claim 1 above) disposed outside the emitter (seat cushion frame is outside the emitter under the seat) and the receiver (e.g., modules 3 in Figs. 1-2 or transmitter/sensor 1C or 1D in Fig. 5); and

said emitter including a light-emitting element having an optical axis (the axis of the emitter or the receiver facing a reflector, e.g., the seat cushion frame) thereof deviating from an imaginary line (line-of-sight between an emitter-and-receiver pair) connecting the emitter and the receiver toward the reflector such that a ratio between incident intensities of first (an unblocked signal along the propagation path from the emitter to the receiver via the reflector) and second (signal along the line-of-sight path between the emitter-and-receiver pair) optical signals, emitted from the emitter, is equal to or higher than a predetermined value (i.e. zero, required to be higher than a value of zero in order to be functional), wherein the reflector comprises a seat cushion frame (see treatment of claim 1 above), and wherein the emitter is configured to transmit the second optical signal directly to an underside of the seat cushion frame (see treatment of claim 1 above).

Regarding claim 7, Maue in view of the APA discloses:

The optical signal transmission device according to claim 6, wherein said receiver includes a light-receiving element (modules 3 in Figs. 1-2 or to transmitter/sensors 1C or 1D in Fig. 5, col. 6, l. 10-14) for receiving the first and second optical signals, and at least one of the light-emitting element of the emitter and the light-receiving element of the receiver is disposed upward (e.g., An obvious location for the emitter of claim 1 under the seat is on the floor under the seat. Thus, as seat cushion frames are generally located above the floor, it would transmit upward toward the seat cushion frame of claim 1.).

Regarding claim 8, Maue in view of the APA discloses:

The optical signal transmission device according to claim 6, wherein said predetermined value is 25%.

Note an exemplary ratio of Maue.:

$$\text{ratio} \sim \frac{\text{unblocked signal (along the path including the reflector)}}{\text{signal along the line-of-sight path (blocked case)}} = \frac{X}{0}, \quad X > 0 = \infty$$

Note the ratio of claim 3:

$$\text{ratio} \sim 25\% = 1/4$$

The exemplary ratio of Maue in view of the APA (∞) is higher than the predetermined value (25%) of claim 3.

Regarding claim 10, Maue in view of the APA discloses:

The optical signal transmission device according to claim 6, wherein said reflector is formed with a curved reflection plane (e.g., seat cushion frames commonly comprise curved surfaces).

Response to Arguments

9. Applicant's arguments filed on 03 October 2005 have been fully considered but they are not persuasive. Applicant's arguments are based on the new seat cushion frame limitations introduced to the claims by amendment. However, note the obviousness rejection of claim 1 above. Maue suggests appropriate positioning of an emitter under a seat (col. 7, l. 52-54) and supplying limited controlled reflection (col. 7, l. 36-47) of its optical signals. An obvious surface for this limited controlled reflection is the seat cushion frame, as supported by the APA (Applicant's specification, p. 5, table). Located under the seat, e.g., on the floor, the emitter would direct an optical signal to an underside of the seat cushion frame as the reflector for this limited controlled reflection. Accordingly, these seat cushion frame limitations are

obvious in view of the teachings of Maue and the APA. Thus, Applicant's arguments are not persuasive, and Examiner respectfully presents the standing rejections.

Conclusion

10. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL.** See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David S. Kim whose telephone number is 571-272-3033. The examiner can normally be reached on Mon.-Fri. 9 AM to 5 PM (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on 571-272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DSK

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